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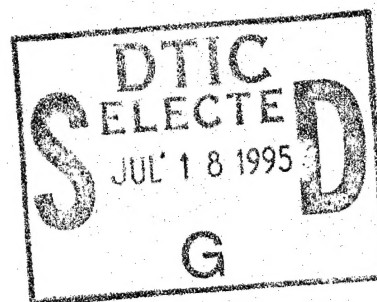
United States General Accounting Office

Report to Congressional Requesters

May 1994

# NAVY MAINTENANCE

## Assessment of the Public and Private Shipyard Competition Program



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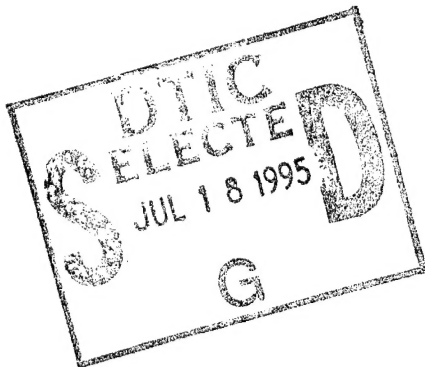
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Competition between public and private shipyards has been the subject of considerable debate over the last 10 years. Legislation enacted since 1985 has attempted to increase competition between the two sectors for defense maintenance work and to ensure that the competitions are fair to both sectors. This report responds to your March 2, 1994, request for an assessment of the results of these competitions and an analysis of related issues, such as the costs included in competitive bids and factors considered in the bid evaluation process. These issues are summarized below and detailed in appendix I. Also, as you asked, we include background information on the Navy's public-private competition program for surface ships and submarine repair in appendix II.

## Background



About 5 percent, or \$136 million, of the Navy's depot-level maintenance budget for surface ships and submarines in fiscal year 1993 was awarded following competition open to public and private shipyards. Shipyards provide depot-level maintenance, which requires extensive shop facilities, specialized equipment, and highly skilled personnel to perform major repairs, overhauls, and modifications. In fiscal year 1993, depot-level maintenance for Navy surface ships and submarines was accomplished by 8 public shipyards and 39 private shipyards. Six public shipyards and two private shipyards are capable of performing repairs on nuclear submarines. Three of the public shipyards are scheduled for closure in 1996—two nuclear capable and one nonnuclear capable.

Statutory and regulatory provisions have been used to address how the Department of Defense (DOD) allocates maintenance workload between the public and private sectors. For example, 1974 legislation established a

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specific dollar value mix for the alteration, overhaul, and repair of naval vessels. Since then, workload allocation decisions have been influenced by percentage goals found in DOD guidance and legislative mandates. In 1982, DOD Directive 4151.1, "Use of Contractor and DOD Resources for Maintenance of Materiel," directed the services to plan for not more than 70 percent of their depot maintenance to be conducted in service depots to maintain a private sector industrial base. A 1992 amendment to 10 U.S.C. 2466 prohibited the military departments and defense agencies from contracting out more than 40 percent of their depot maintenance work to the private sector.

Before fiscal year 1985, Navy surface ship overhauls and repairs either were assigned to public shipyards or were competed, in most cases, only among private shipyards. Nuclear-powered vessels were allocated, sometimes without competition, to private shipyards as well as assigned to public shipyards. Decisions as to the number of "availabilities"<sup>1</sup> to be assigned or competed were based on industrial base considerations; type, complexity, and location of repair workload; the Navy's practice of providing at least 30 percent of the funds for depot maintenance and modernization workload to the private sector; and congressional limitations that the public sector should have at least 60 percent of this workload. The market for Navy ship maintenance and modernization work in the private sector has been very competitive because few commercial ships are being built and little commercial ship repair work is being performed in the United States. Also, the amount of the Navy's new ship construction and ship maintenance and modernization work is declining.

The impetus for public-private competition in the Navy was a 1984 study that concluded that (1) the Navy's shipyards were less efficient than their private sector counterparts and (2) the lack of competition contributed to the Navy's shipyards inattentiveness to controlling cost. The 1985 DOD Appropriations Act<sup>2</sup> and its accompanying legislative history directed the Navy to test the feasibility of using competition between public and private shipyards as the basis for awarding a portion of the ship overhaul and repair workload. The Navy's goal was to compete about 10 percent of its ship maintenance workload. Surface ship competitions included both short-term and long-term repair availabilities. In general, submarine competitions have been limited to short-term repair availabilities, such as

<sup>1</sup>Assignment of a ship to a repair activity for maintenance and modernization is referred to as an availability by the Navy.

<sup>2</sup>P.L. 98-473, 98 stat. 1904, 1907 (1984).

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selected restricted availabilities, which generally require about 2 months and are conducted at a submarine's homeport.

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## Results in Brief

Public shipyards are not competitive with private shipyards for those maintenance and modernization availabilities competed between the two sectors. Since 1988, public shipyards have won less than 14 percent of the surface ship competitions where bids were received from both sectors. Nuclear-capable public shipyards have not won any of the 17 surface ship repair solicitations they have bid on since the inception of the competition program. Private shipyards have won 89 percent of the submarine competitions since fiscal year 1993—the first year private shipyards bid on all submarine availabilities.

We determined on the basis of our analysis that three factors are primarily responsible for the noncompetitiveness of public shipyards. First, they must include a proportionate share of all overhead costs in their bid proposal to reflect the full cost of completing the work, while no such requirement is made of private shipyards. Magnifying this difference is the fact that there has been a dramatic decline in the amount of Navy ship repair work assigned to public shipyards and competed in the private sector. Reduced workload assignments in the public shipyards require them either to reduce their overhead or shift more overhead costs to competitive bid proposals. The reduction of workload competed in the private sector has resulted in aggressive bidding by private shipyards in order to win work to reduce excess capacity.

Second, public sector bids are reviewed by the Defense Contract Audit Agency (DCAA) and the Navy for cost realism to determine if the bids are realistic, considering the work to be performed, and reflect an understanding of the requirements. If these reviews show that a public sector bid has not been developed in accordance with applicable guidance, the bid is either adjusted upward for evaluation, or it is not considered. Private sector bids are not reviewed by DCAA. Third, comparability factors have been added to public shipyard bids to account for costs, such as the portion of civilian retirement costs, that are not reflected in the shipyards' accounting system. While some comparability adjustments are made to private shipyard bids for contract administration, these factors are less than those applied against public shipyards' bids. Additionally, recent changes in the methodology for computing comparability factors for Navy ship competitions are likely to increase the dollar amount of comparability adjustments for public shipyards' bids.

The results of the Navy competition program show that requiring full-cost bids from public shipyards, while not requiring the same from private shipyards, has given the advantage to the private sector. A responsible<sup>3</sup> private shipyard can win any competition in which it is willing to bid low enough. Under current contracting practices, the government cannot deny a private shipyard the award of a contract under a public-private competition for bidding below expected costs unless the contractor is determined not to be responsible. The language in the public-private competition legislation requiring certification that successful bids include comparable estimates of all direct and indirect costs for both public and private bids is not practicable in terms of the private sector when fixed-price type contracts are used. However, private shipyards must absorb any losses from their own funds and must make a profit in the long run or risk going out of business. Our analysis shows that in competitions between the public and private sectors for submarine repair workload, the public sector performed the competed work, on average, at less cost than the private sector.

While the public-private competition program has been useful in promoting the efficiency of public shipyards and decreasing the cost of the competition work accomplished in private shipyards, it may have limited applicability in the current economic and market environment. Workload in both public and private shipyards has sharply declined over the past few years and is declining even further. As a result, few submarine repairs are available for competition. Further, since the public sector is now winning none of the competitions under current procedures, the cost of the Navy ship repair public-private competition program may outweigh program benefits. While program benefits could be more limited in the future, the program may still be effective in reducing depot maintenance workload costs.

In a May 4, 1994, memorandum on depot maintenance operations policy, the Deputy Secretary of Defense discontinued the public-private competition program. We are currently reviewing DOD's competition program. While at this time we see no compelling reason to discontinue the program, there are a number of unresolved issues. For example, we are examining the possible benefits DOD has gained from the program, how workload will be allocated between the public and private sectors in its absence, and the cost of implementing the program. We will continue to

<sup>3</sup>Responsibility refers to the offeror's ability to perform the contract and focuses on factors such as prior performance and financial resources.

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review these and other issues and will report on DOD's overall competition program later this year.

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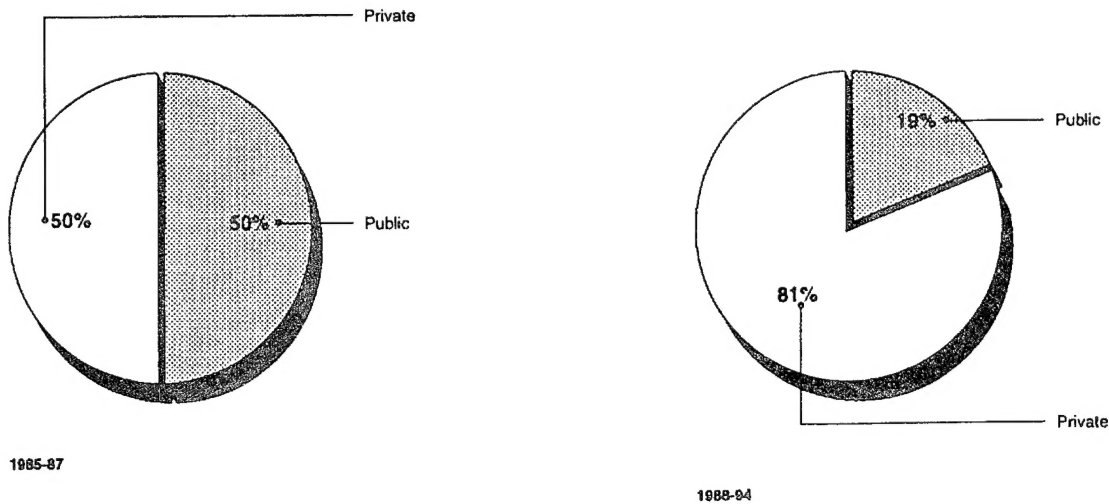
## Only Public Shipyards Must Bid Full Cost

Prior to mid-1987, public shipyard competition proposals generally included only the incremental overhead costs, together with direct costs such as labor and materials. In response to direction in the fiscal year 1985-87 DOD appropriations acts (that the Navy certify that successful public-private competition bids include comparable estimates for direct and indirect costs), in 1987, the Navy began requiring public shipyards to include a proportionate share of all overhead costs in their price proposals. This change had an immediate effect on the number of surface ship competitions won by the public sector.

Prior to 1988, public shipyards won 27 percent (3 of 11) of the head-to-head surface ship competitions. Since that time, public shipyards have won only 14 percent (7 of 51) head-to-head surface ship competitions. The effect has been more gradual on the submarine competition program because the two private yards capable of doing nuclear submarine repair work showed limited interest in the program until the fiscal year 1993 competitions. As shown in figure 1, the percentage of wins by public shipyards for head-to-head competitions for surface ships and submarines declined from 50 percent (1985-87) to 19 percent after full costing was enforced (1988-94). Additionally, during fiscal years 1993 and 1994, when private shipyards became more interested in submarine repair work, the percentage of wins by the public shipyards declined to 11 percent.



Figure 1: Comparison of Public and Private Sector Wins in Head-to-Head Competitions



### Private Shipyards Can Bid Less Than Full Costs

Although public shipyards must include full costs in their proposals, private shipyards can propose prices below their expected costs to complete the work. Current laws, policies, and procedures provide no basis to exclude an otherwise technically acceptable, responsible private shipyard from a competition solely on the basis of an excessively low bid. Thus, if it determines that the private yard is responsible, the Navy can and does award contracts to private shipyards that do not include all their costs in a proposal.

The results of the competition program show that requiring full-cost bids from the public shipyards, while not requiring the same from the private shipyards, has given the advantage to the private sector. A responsible private shipyard can win any competition in which it is willing to bid low enough.

We have not specifically addressed the issue of full costing in a bid protest decision. However, in several bid protests involving the acquisition of depot maintenance work through public-private competition, we have stated that in view of the unique nature of the relationship of public depots to the government, DOD must analyze the costs proposed by a public shipyard for reasonableness. The response to one protest said in part,

In competitions between DOD entities and private firms, the offer of the DOD entity is more closely analogous to a cost reimbursement type contract offer, rather than the fixed-price offer of the private firm, because the government is not legally obligated to pay a private firm more than the offered price, while the government will pay for any cost overruns by a DOD entity from public funds . . .<sup>4</sup>

According to Navy officials, the Navy's decision to require full costing was influenced by the above bid protest language. They noted that generally if a cost reimbursement-type contract offer from the private sector were found to provide for less than full costs, the bid would be adjusted upward to reflect the expected costs to perform the work, since ultimately a DCAA audit at close-out would provide for the contractor to be paid for all allowable and allocable costs incurred in performing the work. Additionally, we reported in 1988 that permitting a public shipyard to include only variable costs, such as the cost of material and some overhead in competition bids, would be inequitable and give public shipyards an unfair competitive advantage.<sup>5</sup> While a requirement that all direct and indirect costs be included implies the use of full rather than marginal costing, it is not clear that the authorizing legislation for public-private competition should be interpreted in the same way.

## Precedent for Less Than Full Costing by Public Sector Depots

Although the authorizing legislation for public-private competition is not clear regarding a requirement for full costing for the public sector, the legislation providing the basis for other allocation decisions between the public and private sector allows for the use of marginal costing. DOD maintains an extensive structure of government-owned, contractor-operated manufacturing facilities. These factories and arsenals are authorized by an array of statutes specifically enacted to ensure their continued existence in the event of a mobilization or national emergency. Under 10 U.S.C. section 4532, for example,

the Secretary of the Army shall have supplies needed for the Department of the Army made in factories or arsenals owned by the United States, so far as those factories or arsenals can make those supplies on an economical basis.

A similar, though discretionary, provision allows the Secretary of the Air Force to have supplies needed for the Department of the Air Force made

<sup>4</sup>Canadian Commercial Corporation/Heroux, Inc., 72 Comp. Gen. 312 (1993). (Includes citations to Hoboken Shipyards, Inc., B-224184.2, Jan. 20, 1987; Newport News Shipbuilding and Dry Dock Co., B-221888, July 2, 1986, affirmed on reconsideration, B-221888.2, Oct. 15, 1986.)

<sup>5</sup>Navy Maintenance: Competing Vessel Overhauls and Repairs Between Public and Private Shipyards (GAO/NSIAD-88-109, Mar. 25, 1988).



in factories, arsenals, or depots owned by the United States, so far as those factories, arsenals, or depots can make those supplies economically. The Arsenal Act does not apply to the Department of the Navy.

Cost comparisons required by the Arsenal Act for determining whether supplies can be economically obtained from government-owned, contractor-operated factories may be made by comparing cost proposals by government plants that exclude costs that would be incurred by the government plants whether or not a particular contract is awarded to that plant.<sup>6</sup> In other words, the Arsenal Act provides that only the marginal costs required to do the additional work in the government facility be considered for comparison purposes.

In a 1960 letter, the Comptroller General reached several conclusions concerning the types of facilities covered by the Arsenal Act and the meaning of the words "economical basis."<sup>7</sup> First, the letter noted that the term government-owned factories would include both government-owned, contractor-operated and government-owned, government-operated industrial facilities. Second, it noted that the words economical basis were intended to require that all costs incurred by the government as a result of producing an article in government-owned facilities be compared with the price at which the article could be purchased from a private manufacturer. Consequently, in determining whether an article could have been produced in a government-owned facility on an economical basis, it would have been improper to include in the evaluation of such cost any amount that did not represent an actual expenditure by, or loss of savings to, the government that was directly attributable to such production.

The intent of the Arsenal Act was to ensure that the Army does not contract out for supplies while there is excess capacity in government industrial facilities that could produce the supplies cost-effectively—that is, unless the cost of acquiring supplies from the private sector was less than the marginal cost to the government of producing the product in the government's facilities.

<sup>6</sup>Action Manufacturing Company, B-220013, Nov. 12, 1985.

<sup>7</sup>Letter from the Comptroller General of the United States to the Chairman, Subcommittee for Special Investigations, Committee on Armed Services, House of Representatives, B-143232, Dec. 15, 1960.

## Cost-Realism Analysis Required for the Public but Not the Private Sector

Public laws authorizing the public-private competition program require certification that successful bids include comparable estimates of all direct and indirect costs for both public and private bids. Private shipyards offering fixed-price bids do not submit the cost data they would in a cost-type solicitation. However, public shipyards offer similar bids but must provide the kind of cost data that would normally accompany a cost-based bid in a traditional competition among private firms.

In several bid protest decisions, we have determined that the certification process associated with public-private competitions should include a cost-realism analysis of the public shipyard's bid. One decision noted that a certification by the Navy without a proper verification that the elements of the public shipyard's estimate are reasonable would render the purpose of this certification meaningless.<sup>8</sup>

Cost-realism analysis refers to a review of the offeror's bid to determine if the overall costs (1) are realistic for the work to be performed, (2) reflect a clear understanding of the requirements, and (3) are consistent with the various elements of the offeror's technical proposal.<sup>9</sup>

Both DCAA and the Navy contracting office review public shipyards' bids for cost realism. DCAA reviews public bids using methods it normally applies in traditional competitions among private firms, providing an independent assessment of whether all direct and indirect costs have been included. DCAA's reports are advisory to the contracting activity, which is required to certify that a winning bid includes all direct and indirect costs.

The requirements for certification and cost realism have had very little effect on the private sector bids primarily because the Navy uses fixed-price type contracts in these competitions. Several GAO bid protest decisions state that where fixed-price contracts with the private sector are involved, cost realism is not required. For example, one decision noted that,

cost realism, which measures the likely cost of performance, is a mandatory consideration for the award of cost-reimbursement contracts, because the government will generally bear the actual costs of performance. Cost realism is typically not a factor in the evaluation of proposals when a fixed-price contract is contemplated, because the government's liability is fixed and the contractor bears the risk of any cost escalation. . . . However, since the

<sup>8</sup>Newport News Shipbuilding and Drydock Co., B-221888, July 2, 1986, affirmed on reconsideration, B-221888.2, Oct. 15, 1986.

<sup>9</sup>48 C.F.R. 215.801.

government exposes itself to the risk of poor performance when a fixed-price contractor is forced to provide services at little or no profit, an agency may, in its discretion, provide in an RFP [request for proposal] for a price-realism analysis as part of the technical evaluation.<sup>10</sup>

Another decision highlights the fact that lack of cost realism is not grounds for rejection of a proposal for a firm fixed-type contract. A company protested the award of a contract to another, claiming that the two firms did not compete on an equal basis because the second firm submitted a below-cost proposal. The Comptroller General stated in part that there are a number of legitimate reasons why a firm might submit a below-cost offer and such an offer does not, in itself, provide grounds for rejection.<sup>11</sup>

According to Navy officials, cost realism for private sector bids is only used for understanding and responsibility determination; that is, to ensure that the contractor understands the work requirements and that the contractor can sustain the loss if the bid is below expected costs. This application of cost-realism analysis to the private sector appears to be consistent with the legal framework discussed above.

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## Cost Comparability

To implement legislative requirements for the public-private competition program, the Defense Depot Maintenance Council published the Cost Comparability Handbook to level the playing field between the public and private sector bids by establishing a framework for cost comparability. The handbook addresses two aspects of cost comparability: first, that public bidders use generally accepted accounting practices to estimate their costs; and second, that public bids include, as closely as possible, exactly the same cost elements as would be included in a private sector bid.

Although the Navy recently canceled its separate guidance in favor of the adoption of the Cost Comparability Handbook, for most years of the Navy competition program, Naval Sea Systems Command guidance identified cost elements to be used in developing comparability factors. Cost elements included varied somewhat between 1988 and 1993. When additional cost elements were identified for inclusion or exclusion, the Command revised its guidance to attempt to improve the fairness of the competition program. Revisions to public shipyards' comparability factors

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<sup>10</sup>J & J Maintenance, Inc., B-244366.2, Mar. 7, 1994.

<sup>11</sup>Price Waterhouse, 65 Comp. Gen. 205 (1986).

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were generally made as the result of changes in DOD accounting procedures.

In October 1993, the Navy adopted the Cost Comparability Handbook procedures. The handbook provides guidance on two cost categories that must be included in public depots' bid proposals. It states that end-item prices should be developed in accordance with the DOD Accounting Manual and generally accepted accounting principles and that bid prices should include an appropriate share of overhead costs based on the actual/planned workload at the activity. It also provides detailed explanations of the comparability adjustments that must be made. The latest version of the handbook was published on August 12, 1993.

The Navy's adoption of the handbook resulted in several changes in how comparability adjustments are computed. First, there are five variances between the composition of the old and new comparability factors. Casualty insurance, impact aid, and industrial health service costs are now additive adjustments to public shipyards' bids, whereas the cost of non-depot-related military activities borne by public shipyards is a subtractive adjustment. Other personnel support costs, a factor previously added to both sectors' bids, are no longer considered.

Second, under the old procedures, comparability factors were developed on a coast-wide basis, but they are now developed locally by each shipyard, based on guidance contained in the Cost Comparability Handbook. This change will increase the comparability factors for the two public shipyards that are still competing for submarine repair work.

Third, the old guidance used a different methodology for making workload assumptions to be used in determining overhead costs that should be included in a given competition bid. Under the old approach, the public shipyard not only was supposed to prepare its public-private competition bids using a best estimate of the workload that could be won but also had to constantly adjust workload assumptions during a given competition year whenever it became evident that fewer or more availabilities should be included in its workload base. Under the handbook, shipyards must only reflect the results of previous competitions in their workload assumptions. Therefore, the handbook relieves the shipyards of the obligation to constantly refine their workload assumptions during a given competition year.

It is too early to determine with precision the impact of these changes on the computation of comparability adjustments. However, Navy contracting officials said that the changes in comparability factors will increase public shipyards' cost estimates, making it even more difficult for public shipyards to be competitive for public-private competition awards. Similarly, our analysis indicates that the comparability adjustments will grow at public shipyards competing for submarine availabilities.

## Usefulness of Public-Private Competition in Future Navy Ship Repair Program Is Limited

The competition program has achieved successes in making the public shipyards more efficient and reducing the costs of repair work contracted with the private sector. Navy officials stated that the competition program has been successful in motivating public shipyards to streamline overhead, improve work processes to reduce labor and material requirements, and implement other cost-cutting initiatives. Our analysis of competition results also indicated benefits from the program. For example, in an analysis of competition submarine availabilities in public and private shipyards during fiscal years 1988-93, we found that on average (1) the cost of repair work by public shipyards was less when the availability was awarded to the public shipyard as a result of a head-to-head competition; (2) the public shipyards had more cost growth for repair work resulting from head-to-head competitions than did private shipyards; and (3) even with cost growth, the average cost to the government per competition availability was \$1.1 million less than the average cost of the competition availabilities accomplished by private shipyards.

Despite the benefits of public-private competition, declining repair opportunities and various industrial base considerations will limit program benefits. For example, between 1990 and 1993, workload declined by about 15 percent at the three public shipyards participating in the submarine public-private competition program. Over this period, about 6.4 percent of the workload in these shipyards was competition work, but that percentage has declined because public shipyards are no longer competitive in the current environment. In fiscal year 1994, none of the workload of these three public shipyards resulted from public-private competition. Although capacity in the public shipyards is also declining as a result of downsizing and the implementation of prior Base Closure and Realignment Commission decisions, ship repair and modernization requirements also continue to decline.

Some repair availabilities that might otherwise have been a part of the competition program may need to be allocated to public shipyards to fill in

scheduling gaps resulting from declining workloads. As repair requirements decline, it will become more difficult to prevent prolonged gaps in the public shipyards' workloads between major repair availabilities. By using short-term repair availabilities that are generally included in the public-private competition program to fill in workload gaps, the Navy believes it can improve the efficiency and cost-effectiveness of the public shipyards. Thus, earmarking such availabilities for the competition program may no longer be practicable, since under current procedures, public shipyards are no longer winning competed availabilities.

In a May 4, 1994, memorandum on depot maintenance operations policy, the Deputy Secretary of Defense discontinued the public-private competition program. He cited a recent report of the Defense Science Board Task Force on Depot Maintenance Management that identified several concerns with continuing the public-private competition program and recommended eliminating it. The task force report noted that efficiencies achieved would not be as likely in the future because the costs of conducting competitions were high and the payoffs would be progressively smaller as workloads were recomputed. It also questioned DOD's ability to create a level playing field and concluded that DOD databases and financial management systems cannot determine the actual costs of specific workloads contributing to the inherent unfairness of the program.

In recent testimony, we noted that DOD has made progress in making these competitions fair and the competition program has contributed to controlling depot costs.<sup>12</sup> Given these and other advantages, we noted that we do not see, at this time, sufficient evidence for terminating the competition program, and we believe public-private competition should remain an option for DOD activities when deciding where repairs should be made. Our work reviewing the public-private competition program continues, and we plan to issue a report on the DOD-wide competition program later this year.

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## Scope and Methodology

Part of the work for this review resulted from our ongoing task force effort to review various depot maintenance issues. We completed the work for this report in May 1994. Our work was performed in accordance with generally accepted government auditing standards. As requested, we did

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<sup>12</sup>Depot Maintenance: Issues in Allocating Workload Between the Public and Private Sectors (GAO/T-NSIAD-94-161, Apr. 12, 1994).



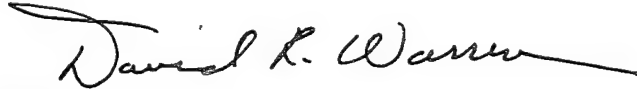
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not obtain official DOD comments. However, we discussed a draft of the report with agency officials and have included their comments where appropriate. Our scope and methodology are discussed in greater detail in appendix III.

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We are sending copies of this report to the Committees and Members of Congress, the Secretaries of Defense and the Navy, and the Director of the Office of Management and Budget. We will also make copies available to other parties upon request.

Please contact me at (202) 512-8412 if you or your staff have any questions concerning this report. The major contributors to this report were Julia Denman, Assistant Director; Dennis DeHart, Deputy Project Director; Jean Orland, Evaluator; and Maureen Murphy, Senior Attorney.

*for*   
Donna M. Heivilin  
Director, Defense Management  
and NASA Issues



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## Abbreviations

|      |                                 |
|------|---------------------------------|
| DCAA | Defense Contract Audit Agency   |
| DOD  | Department of Defense           |
| GAO  | General Accounting Office       |
| OMB  | Office of Management and Budget |

# Program Results

## Size of the Competition Program

Since 1986, the Navy has attempted to put about 10 percent of its overall ship maintenance and modernization budget in the public-private competition program. About 42 percent of the availabilities and 53 percent of the dollar value of ship competitions involved submarines. Table I.1 shows by fiscal year the number of availabilities (both surface ships and submarines) included in the competition program and the percentage of ship maintenance and modernization budget the work represented. For various reasons, the competition program has declined from 11.6 percent of the Navy's ship maintenance and modernization budget in 1990 to 3.7 percent in 1994. Navy officials indicate the percentage will decrease even further.

**Table I.1: Availabilities in the Competition Program and the Percentage of Ship Maintenance and Modernization Budget Represented**

| Fiscal year | Number of availabilities | Percent of budget |
|-------------|--------------------------|-------------------|
| 1985        | 1 <sup>a</sup>           | <sup>b</sup>      |
| 1986        | 12                       | 10.5              |
| 1987        | 15                       | 9.6               |
| 1988        | 19                       | 4.6               |
| 1989        | 21                       | 10.8              |
| 1990        | 38                       | 11.6              |
| 1991        | 29                       | 8.8               |
| 1992        | 31                       | 7.1               |
| 1993        | 23                       | 4.8               |
| 1994        | 15                       | 3.7               |

<sup>a</sup>The other repair in the test program was assigned to the technically qualified public shipyard with the lowest bid.

<sup>b</sup>Less than 1 percent.

Since the inception of the competition program, 117 surface ship and 86 submarine availabilities have been included in the program. Table I.2 shows the distribution of workload between the public and private sectors. Private shipyards were awarded 91 percent of the surface ship availabilities and 33 percent of the submarine availabilities.

**Table I.2: Availabilities Awarded or Assigned to Each Sector During Fiscal Year 1985 Through April 1994**

|               | Availabilities            |           |                           |           |            |
|---------------|---------------------------|-----------|---------------------------|-----------|------------|
|               | Assigned public shipyards |           | Awarded private shipyards |           | Total      |
|               | Number                    | Percent   | Number                    | Percent   |            |
| Surface ships | 11                        | 9         | 106                       | 91        | 117        |
| Submarines    | 58                        | 67        | 28                        | 33        | 86         |
| <b>Total</b>  | <b>69</b>                 | <b>34</b> | <b>134</b>                | <b>66</b> | <b>203</b> |

Note: As of April 30, 1994, the Navy had awarded all but one surface ship availability in the fiscal year 1994 competition program. This pending competition is not reflected in this or any of the following tables.

The public and private shipyards submitted proposals on less than half of the competitions. One explanation is that public shipyards have won few surface ship availabilities and have limited their participation in the program. Another reason is that the only two private shipyards capable of repairing nuclear submarines showed little interest in the program before the 1993 competitions. Table I.3 shows that both public and private shipyards submitted proposals on 62 surface ship and 36 submarine competitions.

**Table I.3: Availabilities for Which Proposals Were Received From Both the Public and Private Sectors (Fiscal Year 1985 Through April 1994)**

|               | Number of availabilities | Proposals received from both sectors | Percent   |
|---------------|--------------------------|--------------------------------------|-----------|
| Surface ships | 117                      | 62                                   | 53        |
| Submarines    | 86                       | 36                                   | 42        |
| <b>Total</b>  | <b>203</b>               | <b>98</b>                            | <b>48</b> |

Private shipyards submitted bids on all 117 surface ship availabilities, while public shipyards submitted bids on 62. Private shipyards submitted proposals for six submarine competitions for which no public shipyard proposal was submitted. Public shipyards submitted proposals for 12 submarine competitions for which no private shipyard proposal was submitted. The Navy noncompetitively assigned 32 additional availabilities to public shipyards because private shipyards expressed no interest in the competitions.



## Public and Private Sector Competition Awards for Head-to-Head Competitions

Only 98 of 203 availabilities designated for the program resulted in head-to-head competition. When no private shipyard expressed interest in submarine availabilities, repair work was assigned to a public shipyard. Data segregating the results of the 98 head-to-head competitions is presented in table I.4. Private shipyards won 76 percent of the head-to-head competitions—including 52 of 62 surface ship availabilities and 22 of 36 submarine availabilities.

**Table I.4: Results of Head-to-Head Competition (Fiscal Year 1985 Through April 1994)**

|               | Availabilities   |           |                   |           |           |
|---------------|------------------|-----------|-------------------|-----------|-----------|
|               | Public shipyards |           | Private shipyards |           | Total     |
|               | Number           | Percent   | Number            | Percent   |           |
| Surface ships | 10               | 16        | 52                | 84        | 62        |
| Submarines    | 14               | 39        | 22                | 61        | 36        |
| <b>Total</b>  | <b>24</b>        | <b>24</b> | <b>74</b>         | <b>76</b> | <b>98</b> |

In mid-1987, the Naval Sea Systems Command began requiring public shipyards to include a proportionate share of all overhead costs in their price proposals to more accurately reflect the cost of accomplishing competed work. Before then, the proposals were generally developed using only the incremental overhead costs expected to be incurred to accomplish the competed work. Table I.5 shows the results of head-to-head surface ship and submarine competitions from 1985 through 1987.

**Table I.5: Results of Head-to-Head Competition (Fiscal Year 1985 Through 1987)**

|               | Availabilities   |           |                   |           |           |
|---------------|------------------|-----------|-------------------|-----------|-----------|
|               | Public shipyards |           | Private shipyards |           | Total     |
|               | Number           | Percent   | Number            | Percent   |           |
| Surface ships | 3                | 27        | 8                 | 73        | 11        |
| Submarines    | 6                | 86        | 1                 | 14        | 7         |
| <b>Total</b>  | <b>9</b>         | <b>50</b> | <b>9</b>          | <b>50</b> | <b>18</b> |

Since 1987, private shipyards have won an increasing percentage of head-to-head competitions. As indicated in table I.6, from fiscal year 1988 through April 1994, private shipyards won 81 percent of the head-to-head competitions, including 44 of 51 surface ship availabilities and 21 of 29 submarine availabilities.

**Table I.6: Results of Head-to-Head Competition (Fiscal Year 1988 Through April 1994)**

|               | Availabilities   |           |                   |           |           |
|---------------|------------------|-----------|-------------------|-----------|-----------|
|               | Public shipyards |           | Private shipyards |           | Total     |
|               | Number           | Percent   | Number            | Percent   |           |
| Surface ships | 7                | 14        | 44                | 86        | 51        |
| Submarines    | 8                | 28        | 21                | 72        | 29        |
| <b>Total</b>  | <b>15</b>        | <b>19</b> | <b>65</b>         | <b>81</b> | <b>80</b> |

One reason that the private sector's win percentage was lower during the earlier years of the program was that private shipyards frequently did not bid on public-private competition work for submarine repairs prior to the fiscal year 1993 program. However, as shown in table I.7, private shipyards have submitted proposals on all submarine availabilities included in the program for fiscal years 1993 and 1994. The declining number of submarines under construction has enhanced the attractiveness of the repair workloads represented by the competitions.

**Table I.7: Private Shipyards' Bidding History on Submarines in the Public-Private Competition Program**

| Fiscal year | Number of availabilities | Number bid on | Number won |
|-------------|--------------------------|---------------|------------|
| 1986        | 2                        | 1             | 0          |
| 1987        | 8                        | 6             | 1          |
| 1988        | 10                       | 6             | 3          |
| 1989        | 5                        | 0             | 0          |
| 1990        | 19                       | 4             | 3          |
| 1991        | 10                       | 2             | 1          |
| 1992        | 14                       | 5             | 4          |
| 1993        | 8                        | 8             | 6          |
| 1994        | 10                       | 10            | 10         |

Private shipyards are winning most competitions for submarine availabilities. As shown in table I.8, private shipyards won 75 percent of the fiscal year 1993 submarine availabilities and 100 percent of the fiscal year 1994 submarine availabilities.

**Table I.8: Results of Head-to-Head Submarine Competitions (Fiscal Year 1993 Through April 1994)**

| Fiscal year  | Availabilities   |           |                   |           |           |
|--------------|------------------|-----------|-------------------|-----------|-----------|
|              | Public shipyards |           | Private shipyards |           | Total     |
|              | Number           | Percent   | Number            | Percent   |           |
| 1993         | 2                | 25        | 6                 | 75        | 8         |
| 1994         | 0                | 0         | 10                | 100       | 10        |
| <b>Total</b> | <b>2</b>         | <b>11</b> | <b>16</b>         | <b>89</b> | <b>18</b> |

We analyzed the 1994 competitions and found several key reasons for the private shipyard awards. Private shipyards submitted the low bids on three availabilities. One public shipyard's bid was not considered in a competition because the bid proposal did not include full costs. This resulted in the award of two availabilities to the lowest private shipyard bidder. One public shipyard's bid did not include all costs, and when adjusted, it became higher than the private shipyard's bid. Applying comparability factors resulted in the award of four availabilities to private shipyards, although the bids submitted by public shipyards were lower.

## Cost Growth in Competed Submarine Repairs

An assessment of the results of the competition program is incomplete without looking at the final costs paid private shipyards and the actual costs incurred by the public shipyards to perform the work. For private shipyards, we compared the average award amount with the average final contract amount. For public shipyards, we compared the assignment amount with final shipyard costs. The availabilities were generally the same type, but workload varied from submarine to submarine. Our analysis indicated that the average cost of performing a competed submarine availability in public shipyards during fiscal years 1988 through 1993 was less than the average amount paid private shipyards for competed submarine availabilities over the same period. As shown in table I.9, the average cost for submarine competition availabilities performed by public shipyards was \$8.3 million. For competition availabilities performed by private shipyards, the average cost was \$8.5 million.

**Table I.9: Average Cost of Repairing Public-Private Competition Program Submarines in the Public and Private Sectors During Fiscal Years 1988-93**

| Dollars in millions |                                 |  |            |                       |
|---------------------|---------------------------------|--|------------|-----------------------|
| Sector              | Average assignment/award amount | Average shipyard costs/final contract amount | Difference | Percent of difference |
| Private             | \$7.5                           | \$8.5  | \$1.0      | 13                    |
| Public              | \$8.6                           | \$8.3  | (\$0.3)    | (4)                   |
| Difference          | (\$1.1)                         | \$0.2  | NA         | NA                    |

Note: Figures within parentheses reflect decreases.

Increases can include both growth work and new work. Growth work relates to technical shortfalls in the original estimate of work requirements, and new work pertains to requirements not included in the original scope of work. As indicated above, on average, the final contract price paid private shipyards was 13 percent more than contract award

price. Conversely, the actual cost of work performed in the public shipyards was on average slightly less than the assignment amount.

Only eight of the competitions won by a public shipyard resulted from head-to-head competition. We analyzed the results of these eight competitions and determined that the average award amount was \$6.3 million, while the average shipyard costs was \$7.4 million—a growth of about 18 percent. For the 21 submarines repaired by private shipyards, the average cost to the government per competition availability was \$8.5 million—\$1.1 million greater than the average cost of the head-to-head competition availabilities accomplished by public sector shipyards. Our analyses indicate that on average (1) the cost of repair work by public shipyards was less when the availability was awarded to the public shipyard as a result of a head-to-head competition; (2) the public shipyards had more cost growth for repair work resulting from head-to-head competitions than did private shipyards; and (3) even with cost growth, the average cost to the government per competition availability was less than the average cost of the competition availabilities accomplished by private shipyards.

# Legislative and Program History

In March 1984, the Defense Subcommittee of the Senate Appropriations Committee held a hearing to review the Navy's request for shipbuilding and ship overhaul programs for fiscal year 1985. During the hearing, the Subcommittee Chairman raised the possibility of holding a competition between public and private shipyards on the basis of cost comparisons.

The report accompanying Senate Bill S. 3026, Department of Defense Appropriation Bill Fiscal Year 1985, proposed a two-ship test program in an effort to "examine the prospect of balancing public and private industrial base concerns while yielding economy through competition." The report noted that S. 3026 provided that the Secretary of the Navy would certify prior to contract award that the successful bid incorporated comparable estimates of direct and indirect costs for public and private shipyards. Conferees from the House and Senate agreed that the Navy should proceed with the test program in accordance with the Senate's procedures.

The test program was included in the appropriation providing fiscal year 1985 funds for the Department of Defense (DOD) (P.L. 98-473). This law provided, as part of Navy Operation and Maintenance appropriations, that from the amounts appropriated for naval vessel alteration, overhaul, and repair, funds be made available for a test program to acquire the overhaul of two or more vessels by competition between public and private shipyards. The act included the Secretary of the Navy certification language referred to in the Senate report accompanying S. 3026. The act also removed the program from the requirements of Office of Management and Budget (OMB) Circular No. A-76 and section 502 of the fiscal year 1981 DOD Authorization Act.

The test program was renewed on an expanded basis in the DOD Appropriations Act for Fiscal Year 1986, Public Law 99-190, which authorized competition between public and private shipyards for work involving at least four ships. The act required the Secretary of the Navy to certify that successful bids included comparable estimates of all direct and indirect costs for both public and private shipyards.

In 1986, a private shipyard filed a protest with GAO that, among other things, questioned the propriety of the agency's selection of lowest target price as the sole evaluation criterion in public-private competitions. We sustained the protest after finding that, while private shipyards must absorb losses on fixed-price type contracts for cost overruns, if the work is assigned to a public shipyard, the source of payment for any cost

overruns is the shipyard's Accumulated Operating Results (similar to a private company's retained earnings), a fund ultimately paid for with taxpayer monies.<sup>1</sup> Thus, we concluded that such a reimbursement arrangement is more analogous to a cost-reimbursement-type contract than a fixed-price type contract and, as a result, the Naval Sea Systems Command must analyze the costs proposed by a public shipyard for reasonableness. Subsequently, the Command issued Instruction 4280.3, "Cost Realism in Public Versus Private Competitions" (Oct. 1, 1986), which requires a contracting officer to perform a cost-realism analysis of the public shipyard's proposed price prior to applying the applicable cost comparability factor.

In fiscal year 1987, the House Appropriations Committee's surveys and investigations staff undertook a study of the Navy ship repair competition program. The staff report identified areas of difference between the pricing abilities of public and private shipyards.<sup>2</sup> The report also described a common public shipyard bid strategy called marginal bidding. Marginal bidding assumed that all or a portion of fixed overhead costs would be absorbed by the assigned workload of the public shipyard, which in effect allowed the public shipyard to reduce significantly proposed costs associated with competitive overhauls. Soon after the report was released, the Navy Comptroller issued Instruction 7600.28, "Financing Policies Regarding Bid Preparation for Workload Subject to Public-Private Competition at Industrially Funded Activities." Issuance of this instruction in July 1987 effectively ended the public shipyard practice of marginal bidding by setting forth the policy that public shipyards must fully reflect in their proposals the current best estimate of costs to perform the effort. Moreover, the instruction directed public shipyards to price proposals based on the same workload and cost economic assumptions used in pricing other work at the activity. Public shipyard price proposals were also to be based on fully allocating and recovering all practicable direct and indirect costs attributable to the performance of work being competed. No such restrictions have been placed on the private sector. Responsible private firms are not required to bid full costs and can bid at a loss.

In fiscal year 1987, no specific number of ships was identified in Public Law 99-500 for inclusion in the public-private competition program. The

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<sup>1</sup>Newport News Shipbuilding and Drydock Co., B-221888, July 2, 1986, affirmed on reconsideration, B-221888.2, Oct. 15, 1986.

<sup>2</sup>"A Report to the Committee on Appropriations, U.S. House of Representatives, on the Navy Competitive Ship Overhaul Program," Surveys and Investigations Staff, May 1987.



act provided that the Navy, rather than specifically the Secretary of the Navy, execute the certification regarding the comparability of public and private bids. By fiscal year 1987, the Navy no longer considered the competitions to be a test program. Because of the successes reported by the Navy on its ship competitions, Congress provided that for fiscal year 1987 the Navy could expand the scope of the competition program to include competitions between the public and private sector for depot repair of aircraft.<sup>3</sup> The Navy's first public-private competition for an aircraft workload was completed in 1988.

The competition program for shipyards was renewed again in the DOD Appropriations Acts for fiscal years 1989 through 1992.<sup>4</sup> The National Defense Authorization Act for Fiscal Year 1991<sup>5</sup> authorized the Army and Air Force to conduct a pilot competition program. In addition, the fiscal year 1991 DOD Appropriations Act<sup>6</sup> extended the public-private competition program further by providing that any DOD depot maintenance activity could compete with the private sector for the production of defense-related articles. This extended program was continued in the DOD Appropriations Acts for fiscal years 1992 through 1993.<sup>7</sup> The 1993 act also required for the first time that an independent activity, the Defense Contract Audit Agency (DCAA), certify that successful bids include comparable estimates of all direct and indirect costs for both public and private bids.

In 1993, a private aviation company filed a protest that, among other things, argued that DCAA's certification of an Air Force depot's bid price was arbitrary and unreasonable in light of DCAA's determination that the depot had understated its proposed costs. We sustained the protest, noting that DCAA had not properly certified the depot's proposal because DCAA's determination that costs were fairly stated essentially ignored the findings presented in DCAA's audit report on the public depot's proposal.<sup>8</sup> In 1993, the Department of the Air Force, DCAA, and the private company requested reconsideration. We affirmed our prior decision in April 1994.

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<sup>3</sup>P.L. 99-591, 99 stat. 3341-83, 334-86 (1986).

<sup>4</sup>P.L. 100-463, 102 stat. 2270, 2270-3 (1988); P.L. 101-165, 103 stat. 1112, 1115 (1989); P.L. 101-511, 104 stat. 1856, 1859 (1990); P.L. 102-172, 105 stat. 1150, 1153-4 (1991).

<sup>5</sup>P.L. 101-510, sec. 922(a), 104 stat. 1485, 1627 (1990).

<sup>6</sup>P.L. 101-511, sec. 8072, 104 stat. 1856, 1891 (1990).

<sup>7</sup>P.L. 102-172, sec. 8120, 105 stat. 1150, 1204 (1991); P.L. 102-396, sec. 9095, 106 stat. 1876, 1942 (1992).

<sup>8</sup>Canadian Commercial Corp./Heroux, Inc., 72 Comp. Gen. 312 (1993).

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The fiscal year 1994 DOD Appropriations Act<sup>9</sup> continued the competition program but provided that the Senior Acquisition Executive of the military departments (with power of delegation) certify that successful bids include comparable estimates of all direct and indirect costs for both public and private bids. As a result, since October 1, 1993, DCAA audit reports have been advisory only because the procuring agency is now responsible for certifying bids. The Navy Acquisition Executive has delegated authority to certify surface ship and submarine competitions to the Commander, Naval Sea Systems Command.

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<sup>9</sup>P.L. 103-139, sec. 8068, 107 stat. 1418, 1455 (1993).

# Scope and Methodology

In response to your March 2, 1994, request for an assessment of the Navy's public-private ship repair competition program, we analyzed (1) the history of the Navy's public-private competition program for surface ships and submarines; (2) program results of these competitions; and (3) competition issues, including full costing, cost realism, and cost comparability factors. We focused on competition issues relating to the bid evaluation process but did not analyze competition issues relating to the work practices in either the public or private sector.

We analyzed laws, regulations, and policies that govern or influence the Navy's public-private ship repair competition program. We discussed the competitive process with Navy officials responsible for implementing the program, including those at Headquarters, Naval Sea Systems Command, and four public shipyards (Portsmouth Naval Shipyard, Portsmouth, New Hampshire; Charleston Naval Shipyard, Charleston, South Carolina; Norfolk Naval Shipyard, Portsmouth, Virginia; and Long Beach Naval Shipyard, Long Beach, California). We also discussed the program with a representative of the Shipbuilders Council of America.

We (1) examined the Navy's and DCAA's methodology for conducting the realism and comparability analyses and assessed the role these analyses played in the competitive process; (2) reviewed Navy records concerning work that had been competed between public and private shipyards as of April 1994, to determine program results; and (3) analyzed current financial data on those contracts to determine the amount of cost growth as of March 31, 1994. For work completed by public shipyards, we compared assignment prices with actual shipyard costs. We computed the average public shipyard cost of repairing public-private competition program submarines during fiscal years 1988 through 1993. For work completed by private shipyards, we compared contract award prices with final contract prices. We computed the average final price paid private shipyards for the repair of submarines in the competition program during fiscal years 1988-93. In conducting this review, we used the same accounting systems, reports, and statistics the Navy uses to monitor the competition program. We did not independently determine their reliability.